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CENTRAL FAX CENTERAppl. No. 10/603,361  
Reply to Office Action of 12/12/2006  
Amdt. dated 04/11/2007APR 11 2007 Attorney Docket No.: N1085-00089  
TSMC 2002-0917REMARKS/ARGUMENTS

Claims 1-18 were previously pending in this application and each of claims 1-18 was rejected in the December 12, 2006 Office action. The rejection of claims 1-18 was maintained in the March 16, 2007 Advisory Action.

5 First and foremost, Applicants thank Examiner Ron Pompey for the opportunity given their undersigned counsel, Mark J. Marcelli, to discuss the invention in a telephonic Examiner Interview that took place on March 26, 2007. Applicants further thank Examiner Pompey for the Examiner Interview Summary that was mailed on April 2, 2007.

10 Claims 1, 3-5, 8 and 17 are amended herein. Independent claims 1 and 17 are amended consistent with the draft claim amendments discussed in the aforementioned Examiner Interview and claims 3-5 are amended for consistency with the amendment to their base claim, independent claim 1. The amendment to claim 8 is editorial in nature.

15 Applicants point out that claim 19, which appeared in the draft claim set provided for discussion in the Examiner Interview, had been previously cancelled and therefore does not appear in the accompanying claim set. Applicants further point out that the draft claim amendments presented and discussed in the aforementioned Examiner Interview were inadvertently made to a pending claim set that preceded the pending claim set. The claim amendments filed herein are appropriately made to the previously 20 pending claim set. The features being added by amendment are essentially the same as discussed.

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**I. Rejections of Claims 1, 3-5, 9, 14-15 and 18 under 35 U.S.C. § 103**

In the December 12, 2006 Office action, specifically in paragraph 2, claims 1, 3-5, 9 and 14-15 and 18 were rejected under 35 U.S.C § 103(a) as being unpatentable over Clark et al. (U.S. Pat. No. 6,767,793), hereinafter "Clark" in view of Inaba et al,

5 (USPN 6,525,403), hereinafter "Inaba". Applicants respectfully submit that these claim rejections are overcome based on the claim amendments filed herein and as discussed in the March 26, 2007 Examiner Interview.

Each of amended independent claims 1 and 17 recites the feature that the lower, underlying device is a semiconductor fin with a planar top surface. Moreover, each of 10 independent claims 1 and 17 recites the feature of the multiple gate electrode extending over and past both sides of the underlying semiconductor fin and having a planar upper surface formed only of the gate electrode material.

In contrast, the upper surface of Clark (FIG. 31) necessarily includes an exposed portion of the dielectric layer that coats the underlying semiconductor fin. Clark does 15 not disclose the feature of a gate electrode material extending both over and laterally past both sides of the underlying semiconductor fin. Clark likely utilizes the exposure of the different material of the dielectric layer to identify the time for ceasing the polishing operation.

While Inaba has been apparently relied upon for providing that the polishing 20 operation is terminated before the subjacent fin is exposed and for therefore reciting a planar upper surface formed only of the gate electrode material and extending over and laterally past the sides of semiconductor fin, Inaba is distinguished from the invention of claims 1 and 17 because the underlying semiconductor fin of Inaba includes a recess or

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divot on the top surface thereof. As discussed in the aforementioned Examiner Interview, Inaba does not provide the underlying semiconductor fin having a planar upper surface.

Moreover, Applicants respectfully submit that one of ordinary skill in the art and in possession of the Clark reference, would not utilize the teachings of Inaba because the Clark reference terminates the polishing operation when a surface of a different material is exposed thereby altering the composition of the effluent polishing slurry and "endpointing" the polishing operation, in essence. Clark also polishes prior to patterning the gate electrode material. Inaba, in contrast appears to polish after patterning the gate electrode material. Moreover, Inaba is further distinguished for apparently using a timed polishing operation, i.e., no different material is exposed by polishing to alter the effluent polishing slurry. As such, one of ordinary skill in the art would not be motivated to alter Clark's polishing operation based on a timed polishing operation.

Applicants further point out that the claimed invention achieves advantageous features not achievable in Clark or Inaba: Because of the claimed structure of the multiple gate electrode having a planar upper surface and disposed over a semiconductor fin having a planar top surface, any subsequently coated photoresist layer will be substantially planar and unaffected by notching such as would otherwise adversely cause necking in the gate electrode material as it steps over an underlying step, specifically the underlying fin. Inaba addresses this by providing the divot to reduce the severity of the step at the location where the multiple gate electrode will traverse the underlying fin. The presence of the divot alleviates the necking phenomenon that plagues a patterning operation when a film steps over an abrupt step

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such as a fin. The claimed invention achieves the planar upper surface of the gate electrode material without having to resort to the use of a fin.

Independent claims 1 and 17 are therefore distinguished from Clark in view of Inaba and the rejection of claims 1, 3-5, 9, 14-15 and 18 should be withdrawn because 5 claims 3-5, 9 and 14-15 depend from claim 1 and claim 18 depends from claim 17. Applicants acknowledge with appreciation the Examiner's indication in the Interview Summary, that the amendment discussed in the Examiner Interview and as essentially submitted herein, reads over the combination of Clark and Inaba.

II. Rejection of Claims 2, 6-8 and 16-17

10 In paragraph 4 of the subject Office action, claims 2, 6-8 and 16-17 were rejected under 35 U.S.C § 103(a) as being unpatentable over Clark in view of Inaba as applied to claims 1 and 17, and further in view of Kinsbron. Applicants respectfully submit that these claim rejections are overcome for reasons set forth below

15 As discussed in Applicants' previous response, Kinsbron merely stands for the proposition that a photoresist layer has a planar top surface and will be of uniform thickness when applied over a planar surface. Kinsbron does not make up for the above-stated efficiencies of Clark in view of Inaba and therefore independent claims 1 and 17 as well as dependent claims 2, 6-8 and 16 are distinguished from the references of Clark, Inaba and Kinsbron.

20 The rejection of claims 2, 6-8 and 16-17 under 35 U.S.C § 103(a), should be withdrawn.

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CONCLUSION

Based on the foregoing, Applicants respectfully submit that each of claims 1-18 is in allowable form and the application is therefore in condition for allowance, which action is expeditiously and respectfully requested by Applicants.

The Assistant Commissioner for Patents is hereby authorized to charge any fees or credit any excess payment that may be associated with this communication, to Deposit Account 04-1679.

Respectfully submitted,

  
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